Solartron Metrology

SI3300

4-20mA/DC-Digital Display

The SI3300 is a member of the SI3000 Readout Family.
All members of the family are marked SI3000 on the front panel.

This manual is specifically for the SI3300 Model with 4-20mA/DC Voltage Inputs

user and installation manual

AMETEK®
ULTRA PRECISION TECHNOLOGIES

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Return Of Goods

Solartron Sales Offices

2.0 Safety Information

Terms in this Manual

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.

Symbols in this Manual

This symbol indicates where applicable cautionary or other information is to be found.

Service Safety
This equipment has been designed and tested to meet the requirements of the Low Voltage Directive (1997) and has been supplied in a safe condition. This manual contains information and warnings that must be followed by the user to ensure safe operation and to retain the apparatus in a safe condition.

Power Source
24v +/-10% DC 0.625A

2.0 Safety Information (cont.)

WARNINGS:

Do not operate in an explosive atmosphere

Do not remove covers or panels
To avoid personal injury, do not remove covers and panels. Do not operate the equipment without the covers and panels fitted. There are no internal adjustments required during commissioning of the equipment.

Grounding the Equipment
The unit is supplied by 24V DC and therefore does not require an earth grounding cable to avoid electric shock. However it is recommended that the unit is properly grounded to a known good earth via the bolt at the rear of the SI3300 to meet the full specification and EMC requirements.

3.0 Service and Repair

This equipment contains no user serviceable parts.

This equipment must be returned to your Solartron dealer for any service and repair.

The SI3300 is designed to be maintenance free. Contact with solvents should be avoided. Any attempt to dismantle the SI3300 will invalidate the warranty.

The SI3300 is a precision instrument and should be handled with care.

4.0 Bench Mounted or Installed into a Panel

4.1 Bench Mounted with associated Solartron Probes and power supply

4.0 Bench Mounted or Installed into a Panel (cont.)

4.2 Panel Mounting

- Ensure that there is sufficient space behind the relevant instrument panel for the SI3300 and its cabling (refer to section 4.3 for dimensions).
- Cut out the panel aperture to the dimensions shown.
- Working from behind the panel, with the box fully located, fit the side brackets to the studs and slide them forward toward the panel until they lock into place.
- Screw the brackets to the panel.

CAUTION: Do not over tighten the screws as this may damage the case of the instrument.

WARNING: On installing or removing the SI3300, you must be aware of any hazardous equipment or materials in the vicinity. Make sure that any equipment into which the SI3300 system is to be installed is switched off and made safe.

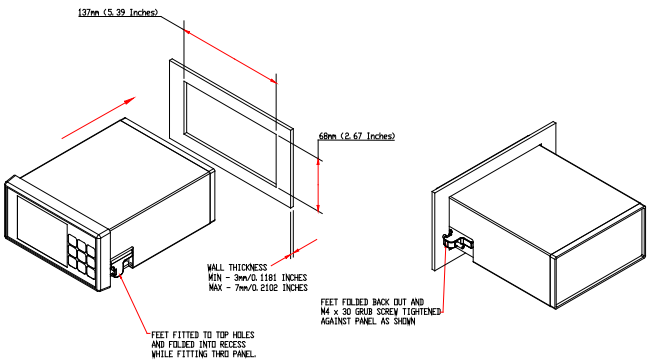
CAUTION: Avoid installing the SI3300 close to switch gear, contactors or motor starters.

CAUTION: Do not place other signal and power supply wiring in the same loom as the SI3300 wiring.

CAUTION: Use screened cables for all leads, with the screen earthed at one end only.

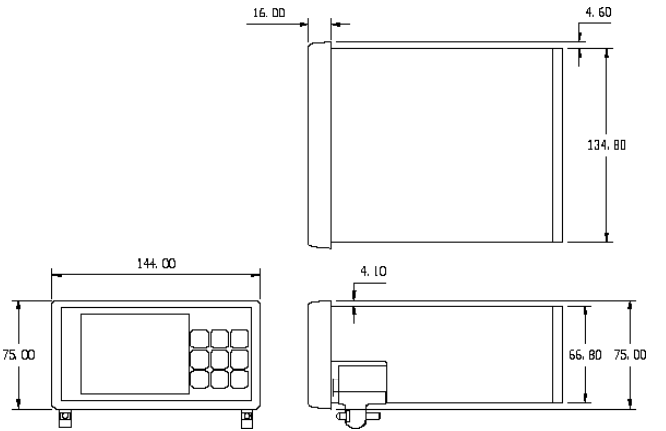
4.0 Bench Mounted or Installed into a Panel (cont.)

4.3 Panel Dimensions


137mm (5.39 Inches)
68mm (2.67 Inches)
WALL THICKNESS
MIN - 3mm/0.1181 INCHES
MAX - 7mm/0.2102 INCHES
FEET FOLDED BACK OUT AND
M4 x 30 GRUB SCREW TIGHTENED
AGAINST PANEL AS SHOWN
FEET FITTED TO TOP HOLES
AND FOLDED INTO RECESS
WHILE FITTING THRO PANEL.

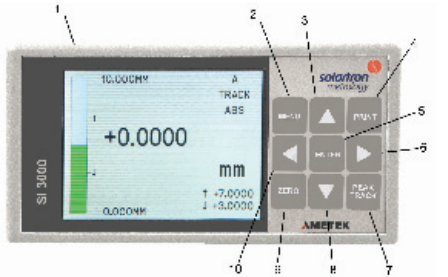
4.0 Bench Mounted or Installed into a Panel (cont.)

4.4 Assembly Dimensions



5.0 Display Panel

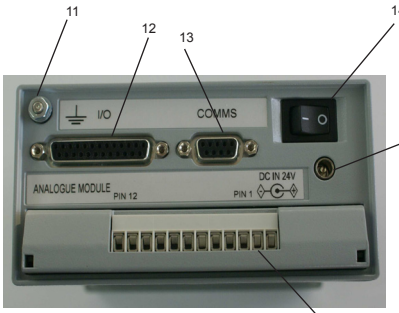
5.1 Layout of Front Panel



1 Liquid Crystal Operator Colour Display
2 Return to Setup Menu
3 Scroll Up (Moves cursor around screen), Apply Preset (ABS/PRE)
4 Print Option
5 Enter
6 Scroll Right (select option)
7 Track, Peak+, Peak-, Diff
8 Scroll Down (Moves cursor around screen)
9 Zero (ABS/TARE)
10 Scroll Left (select option)

5.0 Display Panel (cont.)

5.2 Layout of Rear Panel



11 Screen Earth
12 Input/Output Connection
13 RS232 Communications
14 24V DC ON/OFF Switch
15 24V DC Supply
16 Transducer Connections

5.0 Display Panel (cont.)

5.3 Overview of Features

<table>
<tr><td>Transducers</td><td>1 or 2 transducers may be connected
SI3100 Series LVDT
(Note: when setting up LVDT enter sensitivity in mV/V/mm regardless of final choice of measurement units)
SI3300 Series 4-20 mA or DC inputs (0-5 V, 0-10 V, ±5 V, ±10 V)

SI3500 Series – Orbit (Digital Probes and Linear Encoders)</td></tr>
<tr><td>Measurements and Display</td><td>The SI3000 series can display in single measurement mode A, B, A+B, A-B, (A+B)/2, (A-B)/2 and (B-A)/a

The SI3300 and SI3500 series can display in dual measurement mode the sensor information A and B only; it is not possible to display any combinational information in dual display mode.

(Note: (B-A)/a limited to ±2.5 deg.)</td></tr>
<tr><td>Limits</td><td>Upper and lower limits are set for each individual measurement channel (A and B) and for a combinational measurement (e.g. A+B)

The SI3000 series has 6 isolated open collector limit outputs which are allocated in accordance to the measurement mode.
<table>
<tr><td></td><td>Lower</td><td>Good</td><td>Upper</td><td>Lower</td><td>Good</td><td>Upper</td></tr>
<tr><td>A</td><td>Active</td><td>Active</td><td>Active</td><td>Off</td><td>Off</td><td>Off</td></tr>
<tr><td>B</td><td>Off</td><td>Off</td><td>Off</td><td>Active</td><td>Active</td><td>Active</td></tr>
<tr><td>A+B etc</td><td>Active</td><td>Active</td><td>Active</td><td>Active</td><td>Active</td><td>Active</td></tr>
</table>
If the measurement is within limit, then the good limit output is set, otherwise the upper or lower limit outputs are set to indicate a reading out of limit.</td></tr>
</table>

5.0 Display Panel (cont.)

5.3 Overview of Features (cont.)

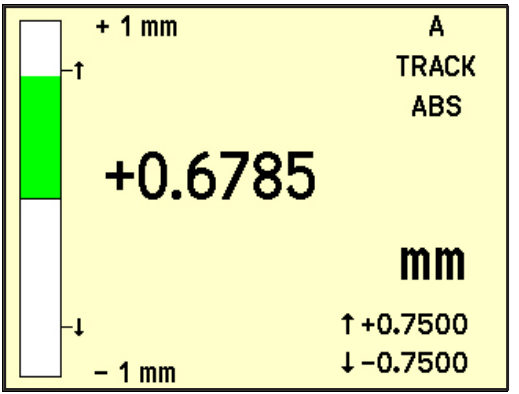
<table>
<tr><td>Functions</td><td colspan="3">The SI3000 series has the following functions available from the font panel keypad or controllable from the RS232 and some discrete inputs.
Zero: Allows a reading to be set to zero (display shows TARE) all measurements are then referenced to the zero position.
Print: Allows measured data to be printed via the RS232 port.
Peak/Track Allows the readout to be switched from track mode to peak+ or peak-. In peak mode the displayed value will only change if it is greater than (peak+) or less than (peak-) the current displayed value.
Menu (keypad only) accesses menu screens for set up.
The SI3300 and SI3500 series have the following additional functions:
Preset: Allows a preset value to be added to the displayed reading only – does not change the analogue outputs. Enable preset from the preset menu and activate with the up arrow key.
In dual display mode it is possible to set the preset and zero to activate on both channels.
Log Mode: The readout can log and store data in three modes
Normal logging which will store a number of readings at a predefined interval. Setup and start from logging menu screen
Trigger start which will store a number of readings at a predefined interval, once the start logging input is triggered.
Log on Trigger which will store a reading every time the logging input is triggered, this mode is started from the logging menu.</td></tr>
<tr><td>Inputs</td><td colspan="3">6 discrete inputs, Zero, Change from track to peak+ to peak-, print, log, real reset, preset.</td></tr>
<tr><td rowspan="6">Analogue Outputs</td><td></td><td>Analogue Output 1</td><td>Analogue Output 2</td></tr>
<tr><td>A</td><td>A</td><td>Off (null)</td></tr>
<tr><td>B</td><td>Off (null)</td><td>B</td></tr>
<tr><td>A+B etc.</td><td>A+B etc.</td><td>A+B etc.</td></tr>
<tr><td>Dual Display (SI3500 and SI3300 only)</td><td>A</td><td>B</td></tr>
<tr><td colspan="3">Each analogue output can be independently set for 4-20 mA or a DC voltage (0-5 V, 0-10 V, ±5 V and ±10 V</td></tr>
</table>

6.0 Operating Screen

Display seen directly after powering up

Note: This screen will vary depending on the Operator Screen displayed prior to powering down

Press MENU go to 6.1



6.0 Operating Screen (cont.)

6.1 MENUS and SETUPS

Scroll up or down using the △ ▽ keys to the required sub menu PRESS (ENTER)

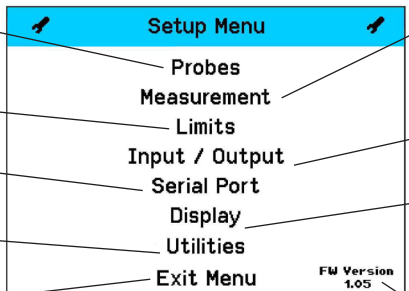
Probes 6.2
Selects the type of probes to be used with this instrument, the parameters, channels and Identification associated with each probe.

Limits 6.8
Sets up the Upper and Lower measurement limits

Serial Port 6.10
Sets up the parameters for the Serial RS232 Port.

Utilities 6.13
Restore Factory Default Settings

Exit Menu 6.17
Shows Operator Screen



Measurement 6.4
Selects Measurement type. A,B,(A+B) etc.
Measurement Mode (Track, Peak+, Peak-, Diff)
Reset Mode (Manual/Auto)
Trigger Time (0000 ms)
Peak Trigger Level (+/-000.00000xx)
Units (mm,inch for distance)(rad,deg for angle)
Unipolar/Bipolar (Auto Mode, Unipolar, Bipolar)
Distance 'n' (0001.0000) for angle

Input/Output 6.9
Logic I/O + Analogue outputs
Print options

Display 6.12
Set Language, Contrast,
Bar Offset, Bar
(+/-000.00000)
AutoRange (on/off)
Places After Decimal
point (0 to 6)

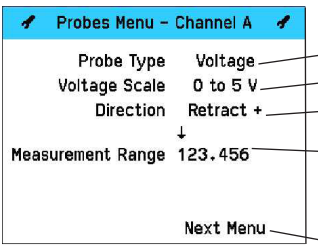
Shows current Firmware version

6.0 Operating Screen (cont.)

6.2 Probes Channel A

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.
e.g. Extend + or Retract+



◁ ▷ NONE, Voltage, Current

◁ ▷ 4-20mA, 0-5V, 0-10V, +/-5V, +/-10V

◁ ▷ EXTEND +

△ ▽ Press ENTER to Edit parameter

◁ ▷ To move cursor

△ ▽ To increment/decrement numbers

△ ▽ To change +/-
Press ENTER to Exit Mode

Press ENTER see 6.3
Channel B

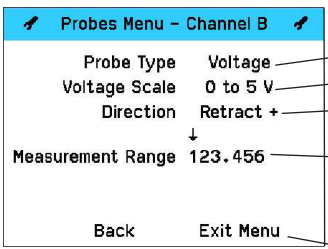
Notes
Press MENU to return to the Operator Screen
With cursor over NEXT MENU Press ENTER for next sub Menu
With cursor over EXIT MENU Press ENTER to return to Setup Menu

6.0 Operating Screen (cont.)

6.3 Probes Channel B

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.
e.g. Extend + or Retract+



◁ ▷ NONE, Voltage, Current

◁ ▷ 4-20mA, 0-5V, 0-10V, +/-5V, +/-10V

◁ ▷ EXTEND +

△ ▽ Press ENTER to Edit parameter

◁ ▷ To move cursor

△ ▽ To increment/decrement numbers

△ ▽ To change +/-
Press ENTER to Exit Mode

Press ENTER see 6.1
Channel B

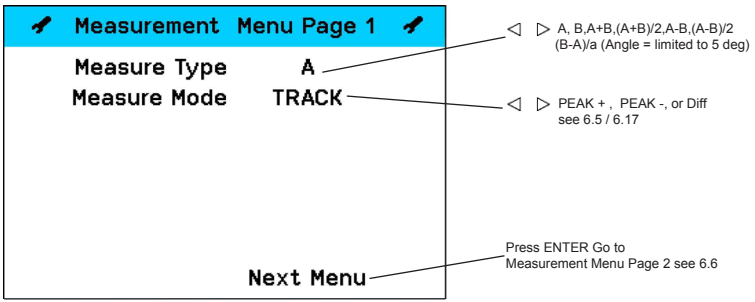
Notes
Press MENU to return to the Operator Screen
With cursor over BACK Press ENTER for previous sub Menu
With cursor over EXIT MENU Press ENTER to return to Setup Menu

6.0 Operating Screen (cont.)

6.4 Measurement Menu Page 1

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.

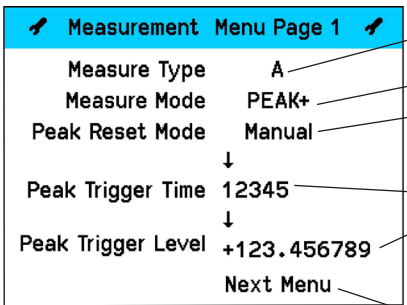


6.0 Operating Screen (cont.)

6.5 Measurement Menu Page 1

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.



◁ ▷ Measure Type B,A+B,(A+B)/2,A-B,(A-B)/2,(B-A)/a
(Shows on Operator Screen in mm, inch for distance)

◁ ▷ Measure Mode Track, Peak+, Peak-, Diff

◁ ▷ Auto, Manual

Auto Mode only

△ ▽ Press ENTER to Edit parameter

◁ ▷ To move cursor

△ ▽ To increment/decrement numbers

△ ▽ To change +/-
Press ENTER to Exit Mode

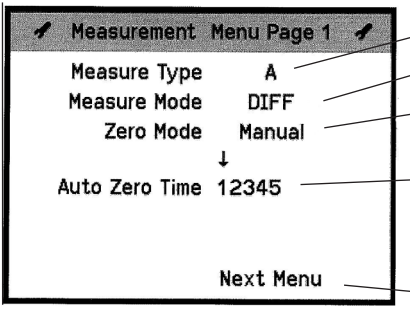
Press ENTER see 6.6

6.0 Operating Screen (cont.)

6.5.1 Measurement Menu Page 1

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.



◁ ▷ Measure Type B,A+B,(A+B)/2,A-B,(A-B)/2, (B-A)/a
(Shows on Operator Screen in mm, inch for distance)
(Shows on Operator Screen in rad, deg for angle)

◁ ▷ Measure Mode Track, Peak+, Peak-, Diff

◁ ▷ Auto, Manual

Diff Mode only

△ ▽ Press ENTER to Edit parameter

◁ ▷ To move cursor

△ ▽ To increment/decrement numbers

△ ▽ To change +/-
Press ENTER to Exit Mode

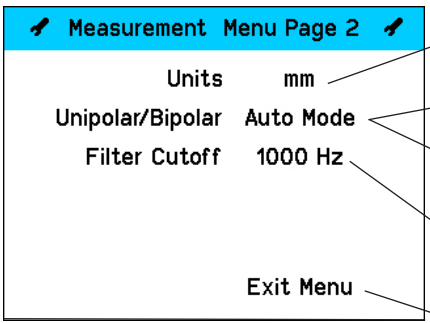
Press ENTER

6.0 Operating Screen (cont.)

6.6 Measurement Menu Page 2

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.



◁ ▷ mm. inches, none

◁ ▷ Bipolar, Unipolar or Auto Mode

Bipolar selected
Measurement range displayed Top + xx mm/inch
Bottom - xx mm/inch
Centrally Tracks the +/- measurements within limits in green turning to red when outside the limits.

Unipolar selected
Measurement range displayed Top + xx mm/inch
Bottom 0 xx mm/inch
Tracks the + measurement within limit turning to red when outside the limit.

Display filter 4 Hz, 8 Hz, 250 Hz, 1000 Hz

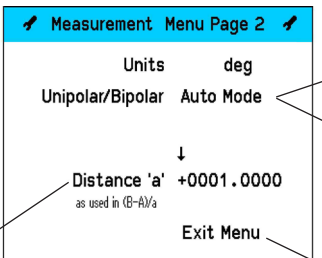
Press ENTER
Back to Setup Menu

6.0 Operating Screen (cont.)

6.7 Measurement (Angle) Menu Page 2

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.



◁ ▷ Bipolar, Unipolar or Auto Mode

Bipolar selected
Measurement range displayed Top + xx rad/deg
Bottom - xx rad/deg
Centrally Tracks the +/- measurements within limits in green turning to red when outside the limits.

Unipolar selected
Measurement range displayed Top + xx rad/deg
Bottom 0 xx rad/deg
Tracks the + measurement within limit turning to red when outside the limit.

Auto Mode only
△ ▽ Press ENTER to Edit parameter
◁ ▷ To move cursor
△ ▽ To increment/decrement numbers
△ ▽ To change +/-
Press ENTER to Exit Mode

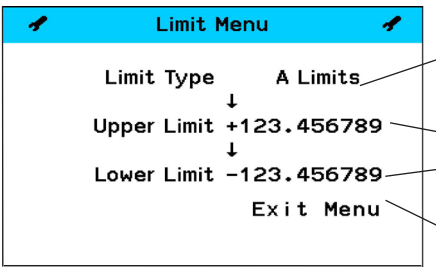
Press ENTER see 6.1
Back to Setup Menu

6.0 Operating Screen (cont.)

6.8 Limit Menu

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.



3 types of limits can be displayed A,B and "Computed Limits" when more than one measurement type selected see 6.4

△ ▽ Press ENTER to Edit parameter

◁ ▷ To move cursor

△ ▽ To increment/decrement numbers

△ ▽ To change +/-
Press ENTER to Exit Mode

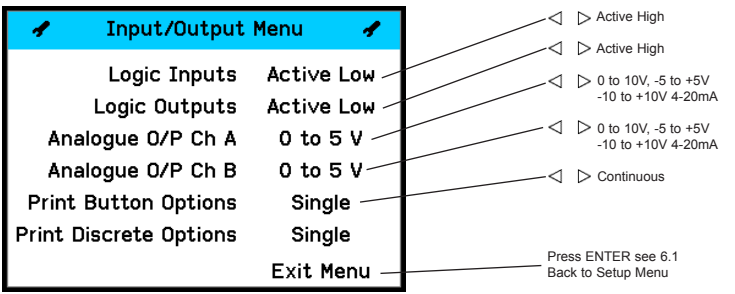
Press ENTER see 6.1
Back to Setup Menu

6.0 Operating Screen (cont.)

6.9 Input/Output Menu

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.

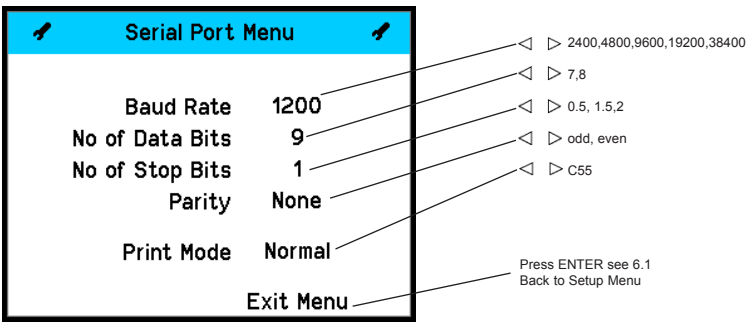


6.0 Operating Screen (cont.)

6.10 Serial Port Menu

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.

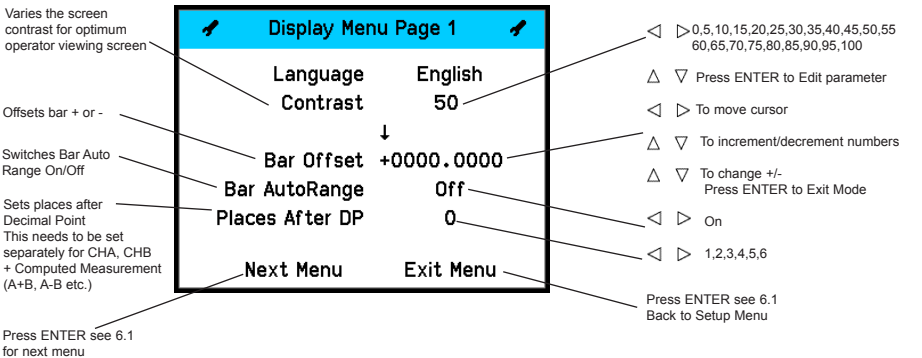


6.0 Operating Screen (cont.)

6.11 Display Menu - Screen 1

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.

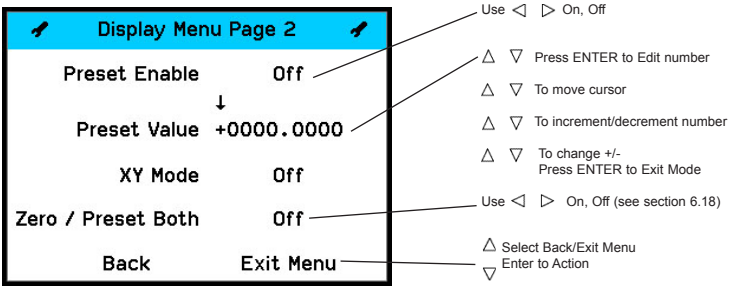

Varies the screen contrast for optimum operator viewing screen
Offsets bar + or -
Switches Bar Auto Range On/Off
Sets places after Decimal Point This needs to be set separately for CHA, CHB + Computed Measurement (A+B, A-B etc.)
Press ENTER see 6.1 for next menu
Display Menu Page 1
Language English
Contrast 50
Bar Offset +0000.0000
Bar AutoRange Off
Places After DP 0
Next Menu Exit Menu
◁ ▷ 0,5,10,15,20,25,30,35,40,45,50,55 60,65,70,75,80,85,90,95,100
△ ▽ Press ENTER to Edit parameter
◁ ▷ To move cursor
△ ▽ To increment/decrement numbers
△ ▽ To change +/- Press ENTER to Exit Mode
◁ ▷ On
◁ ▷ 1,2,3,4,5,6
Press ENTER see 6.1 Back to Setup Menu

6.0 Operating Screen (cont.)

6.12 Display Menu - Screen 2

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.

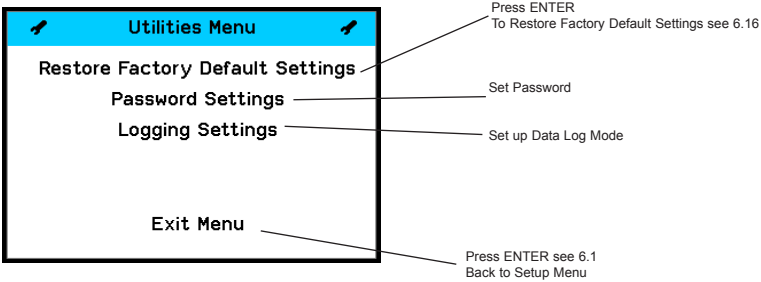

Display Menu Page 2
Preset Enable Off
Preset Value +0000.0000
XY Mode Off
Zero / Preset Both Off
Back Exit Menu
Use ◁ ▷ On, Off
△ ▽ Press ENTER to Edit number
△ ▽ To move cursor
△ ▽ To increment/decrement number
△ ▽ To change +/-
Press ENTER to Exit Mode
Use ◁ ▷ On, Off (see section 6.18)
△ Select Back/Exit Menu
▽ Enter to Action

6.0 Operating Screen (cont.)

6.13 Utilities Menu

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.

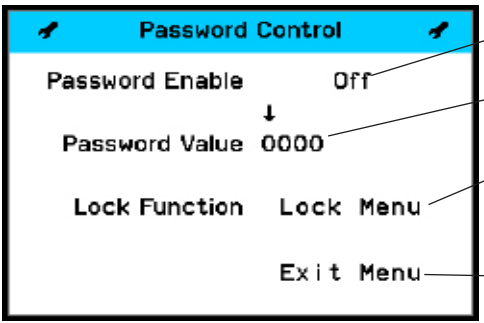


6.0 Operating Screen (cont.)

6.14 Password Menu

Use △ ▽ to move the cursor around the screen.

Use ◁ ▷ to select options.



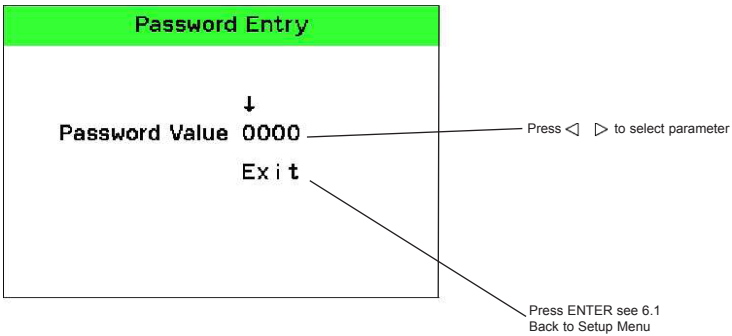
6.0 Operating Screen (cont.)

6.15 Password Entry

Note: Only seen if password enabled

Use △ ▽ to move the cursor around the screen.

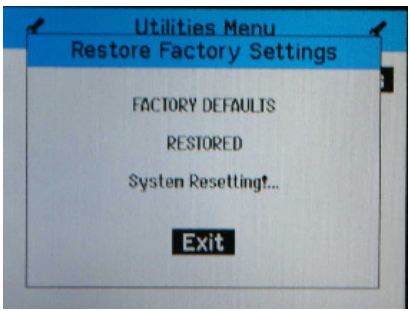
Use ◁ ▷ to select options.



6.0 Operating Screen (cont.)

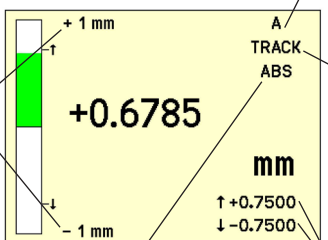
6.16 Utilities Menu (Factory Default Restore)

The following is displayed for 3 seconds, the unit automatically defaults to factory setting and returns to the Operator Screen.



6.0 Operating Screen (cont.)

6.17 Operator Screen



Auto Range ON/OFF see 6.7 Display Menu

Press Zero to select ABS (Absolute) or TARE (Offset)

Selected Measurement Menu see 6.3

Track PEAK+,PEAK-,DIFF Selected at Measurement menu see 6.3 or PEAK/TRACK membrane on keypad

TRACK Measures actual distance/angle within the set limits displaying green. Turning red when outside the set limits. Returning to green when back inside the limits.

PEAK+ Measures within the set limits displaying green turning red when outside the set limits. Pressing ENTER resets

PEAK- Measures within the set limits displaying green turning red when outside the set limits. Pressing ENTER resets

DIFF measures Peak+, Peak-, measures within the set limits displaying green turning red when outside of limits out

If manual set, Peak +/- Press enter to reset.

If Auto set, Peak + reset to probe actual position **Below** Peak Trigger Time/Peak Trigger Level

If Auto set. Peak - reset to probe actual position **Above** Peak Trigger Time/Peak Trigger Level

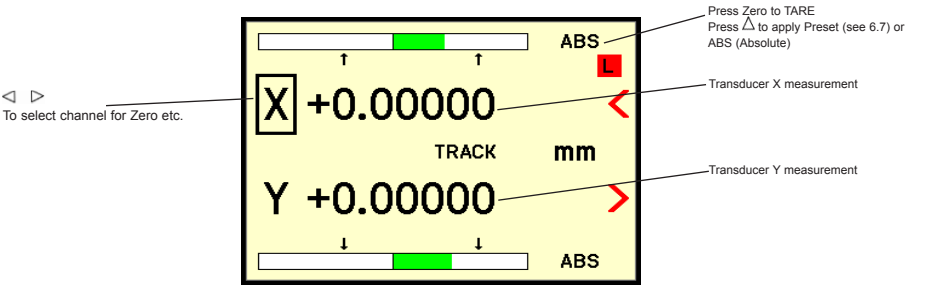
If Auto set, Diff - Diff zeroed every time period

Selected by Limit Menu

Press MENU see 6.1 Set Up Menu

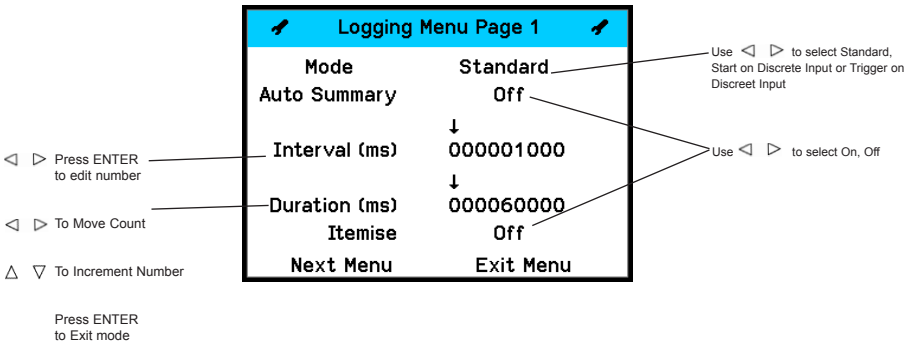
6.0 Operating Screen (cont.)

6.18 X Y Mode



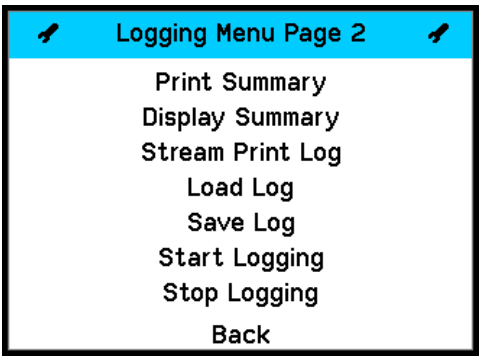
6.0 Operating Screen (cont.)

6.19 Logging Menu Page 1



6.0 Operating Screen (cont.)

6.20 Logging Menu Page 2



Use △ ▽ to move to option

Press ENTER to Select option

7.0 RS232 User Input Commands

The unit shall respond to the following RS232 User Input Commands

Command	Command Sequence	Number of Parameter Bytes	Description
Print	'^"O'	0	Print Mode = Normal : Standard print Print Mode = C55 : C55 compatible print (Print Mode option is located in the 'serial port' menu)
Extended Print	'^"P'	1	Print in SI3300 Format
Get Detail	'^"E'	2	Return Details about the SI3300 *ABS or TARE, Measurement Type,* *Unit of Measure, Limit Values*
Set Unit	'^"S'	11	Set Various SI3300 Settings *Limits, Stroke, Measurement Type, Measurement Mode, Zero, Start/Stop Continuous Print, Set Print Button Mode, Notify, Stop Notify, Peak Reset, Discrete Inputs Active Hi/ Lo, Discrete Outputs Active Hi/Lo*

Detailed Command specification with full parameter details follows on the next pages.

7.0 RS232 User Input Commands (cont.)

7.1 RS232 User Command Details

In the following table sp is used to mean an Ascii space (Dec 32 Hex 20)
Shaded cells mean they are not used for the command shown

Command	Total No of Chars	Character Number												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Print	2	^	O											
Extended Print														
Current Measurement	3	^	P	0										
Channel A	3	^	P	1										
Channel B	3	^	P	2										
GetDetail														
Get Abs or Tare	4	^	E	A	0									
Get Measurement Mode	4	^	E	M	0									
Get Unit of Measure	4	^	E	U	0									
Get Current Mode LL	4	^	E	L	0									
Get Current Mode UL	4	^	E	L	1									
Get Computed LL	4	^	E	L	2									
Get Computed UL	4	^	E	L	3									
Get Channel A LL	4	^	E	L	4									
Get Channel A UL	4	^	E	L	5									
Get Channel B LL	4	^	E	L	6									
Get Channel B UL	4	^	E	L	7									
Get Computed Stroke	4	^	E	S	0									
Get Channel A Stroke	4	^	E	S	1									
Get Channel B Stroke	4	^	E	S	2									

7.0 RS232 User Input Commands (cont.)

7.1 RS232 User Command Details (cont.)

In the following table sp is used to mean an Ascii space (Dec 32 Hex 20)

Command	Total No of Chars	Character Number												
		1	2	3	4	5	6	7	8	9	10	11	12	13
SetUnit														
Set Limits														
Set Ch A UL	13	^	S	L	A	U	1	.	2	3	4	sp	sp	sp
Set Ch A LL	13	^	S	L	A	L	0	.	7	8	9	sp	sp	sp
Set Ch B UL	13	^	S	L	B	U	1	.	2	3	4	sp	sp	sp
Set Ch B LL	13	^	S	L	B	L	0	.	7	8	9	sp	sp	sp
Set Computed UL	13	^	S	L	C	U	1	.	2	3	4	sp	sp	sp
Set Computed LL	13	^	S	L	C	L	0	.	7	8	9	sp	sp	sp
Set Measurement Type														
A	13	^	S	M	0	sp	sp	sp	sp	sp	sp	sp	sp	sp
B	13	^	S	M	1	sp	sp	sp	sp	sp	sp	sp	sp	sp
A+B	13	^	S	M	2	sp	sp	sp	sp	sp	sp	sp	sp	sp
(A+B)/2	13	^	S	M	3	sp	sp	sp	sp	sp	sp	sp	sp	sp
A-B	13	^	S	M	4	sp	sp	sp	sp	sp	sp	sp	sp	sp
(A-B)/2	13	^	S	M	5	sp	sp	sp	sp	sp	sp	sp	sp	sp
(B-A)a (angle)	13	^	S	M	6	sp	sp	sp	sp	sp	sp	sp	sp	sp

7.0 RS232 User Input Commands (cont.)

7.1 RS232 User Command Details (cont.) X = Value eg 3.4 pad with spaces

Command	Total No of Chars	Character Number												
		1	2	3	4	5	6	7	8	9	10	11	12	13
SetUnit														
Set Measurement Mode														
Track	13	^	S	O	N	sp	sp	sp	sp	sp	sp	sp	sp	sp
Peak+	13	^	S	O	+	sp	sp	sp	sp	sp	sp	sp	sp	sp
Peak-	13	^	S	O	-	sp	sp	sp	sp	sp	sp	sp	sp	sp
Diff	13	^	S	O	D	sp	sp	sp	sp	sp	sp	sp	sp	sp
Zero	13	^	S	Z	sp	sp	sp	sp	sp	sp	sp	sp	sp	sp
Peak Reset	13	^	S	P	E	A	K	R	E	S	E	T	sp	sp
Start Continuous Print	13	^	S	P	R	I	N	T	C	O	N	T	sp	sp
Stop Continuous Print	13	^	S	P	R	I	N	T	S	T	O	P	sp	sp
Set Print Key Single Mode	13	^	S	P	R	I	N	T	M	O	D	E	S	sp
Set Print Key Cont Mode	13	^	S	P	R	I	N	T	M	O	D	E	C	sp
Set I/O Logic State														
Logic Inputs Active Low	13	^	S	I	-	I	N	P	-	L	O	sp	sp	sp
Logic Inputs Active High	13	^	S	I	-	I	N	P	-	H	I	sp	sp	sp
Logic Outputs Active Low	13	^	S	I	-	O	U	T	-	L	O	sp	sp	sp
Logic Outputs Active High	13	^	S	I	-	O	U	T	-	H	I	sp	sp	sp
Notify														
Notify Probe Channel A	13	^	S	N	O	T	I	F	Y	-	C	H	A	sp
Notify Probe Channel B	13	^	S	N	O	T	I	F	Y	-	C	H	B	sp
Stop Notify	13	^	S	N	O	T	I	F	Y	H	A	L	T	sp
Zero Both	5	T	Z	0	0	0								
Zero One	5	T	Z	1	0	0								
Preset On	13	S	R	-	O	N	sp	sp	sp	sp	sp	sp	sp	sp
Preset Off	13	S	R	-	O	F	F	sp	sp	sp	sp	sp	sp	sp
Set Preset Value	13	S	R	:	±	X	X	X	X	X	X	X	X	sp
Preset Toggle	13	S	R	-	T	O	G	G	L	E	sp	sp	sp	sp
Peak Reset	13	S	R	E	S	E	T	sp	sp	sp	sp	sp	sp	sp

7.0 RS232 User Input Commands (cont.)

7.2 RS232 Output Formats

PRINT OUTPUT FORMATS

	C55 Compatible	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Format		Sign	Reading: right aligned, DP set by precision											Units					Limit	\n	\r
Example	+0.00017mm	+					0	•	0	0	0	1	7	m	m				=	\n	\r
	-0.0017mm	-					0	•	0	0	1	7		m	m				=	\n	\r
	-0.017mm						0	•	0	1	7			m	m				=	\n	\r

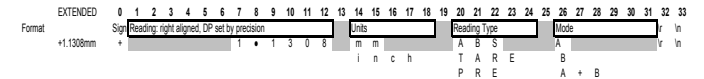
	NORMAL	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Format		Sign	Reading: right aligned, DP set by precision													Units						Limit		\r	\n
	+1.1308mm	+							1	•	1	3	0	8		m	m					=		\r	\n
	-1.1308inch	-							1	•	1	3	0	8		i	n	c	h			=		\r	\n
	-1.1308	-							1	•	1	3	0	8								=		\r	\n
	-1.13mm	-									1	•	1	3		m	m					=		\r	\n

Note. XY print is not available when C55 'Print Mode' is selected. In this case only the selected channel will be printed.

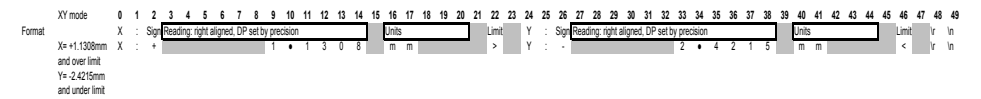
Where: =space
\r = CR
\n = LF

7.0 RS232 User Input Commands (cont.)

7.2 RS232 Output Formats


EXTENDED
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Format
Sign Reading: right aligned, DP set by precision
Units
Reading Type
Mode
\r \n
+1.1308mm
+ 1 • 1 3 0 8
m m
i n c h
A B S
T A R E
P R E
A
B
A + B
\r \n

The Extended Print is only available via remote RS232 commands (^P0 or ^P1 or ^P2). It is not selected, just requested.


XY mode
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49
Format
X : Sign Reading: right aligned, DP set by precision
Units
Limit
Y : Sign Reading: right aligned, DP set by precision
Units
Limit
\r \n
X= +1.1308mm and over limit
X : + 1 • 1 3 0 8
m m
>
Y= -2.4215mm and under limit
Y : - 2 • 4 2 1 5
m m
<
\r \n

Note. XY print is not available when C55 'Print Mode' is selected. In this case only the selected channel will be printed.

Where: =space
\r = CR
\n = LF

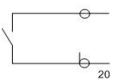
8.0 Interface Connections

8.1 I/O CONNECTOR (Mounted on I/O Board)

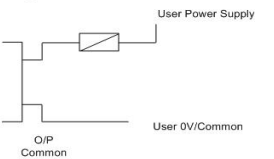
25 WAY D TYPE SOCKET, FIXED TO REAR PANEL

PIN	DESCRIPTION	DETAIL
1	CH1 OVER RANGE	
14	CH1 IN RANGE	
2	CH1 UNDER RANGE	
15	CH2 OVER RANGE	
3	CH2 IN RANGE	
16	CH2 UNDER RANGE	
4	Isolated O/P Common	
17	'Zero key' Isolated I/P	
5	'Print key' Isolated I/P	
18	'Reset key' Isolated I/P	
6	'Peak key' Isolated I/P	
19	Log Control	
7	'Preset Enable'	
20	Isolated I/P Common	
8	Not Used	
21	Not Used	
9	Not Used	
22	Not Used	
10	Not Used	
23	CH1 Analogue O/P Common	CH1 O/P Return
11	CH1 Analogue O/P	CH1 Analogue O/P
24	CH2 Analogue O/P Common	CH2 O/P Return
12	CH2 Analogue O/P	CH2 Analogue O/P
25	Not Used	
13	Not Used	

Input Schematic



Output Schematic



ANALOGUE OUTPUT SPECIFICATION	
Update interval	1.25mS
Bandwidth	500Hz
Rise time	70mS
Accuracy	0.1% FSO

8.0 Interface Connections (cont.)

8.2 COMMS CONNECTOR

9 WAY D TYPE PCB SOCKET, FIXED TO REAR PANEL

PIN	RS232 CONFIGURATION
1	Not Used
2	RS232 Tx
3	RS232 Rx
4	Not Used
5	RS232 GND
6	Not Used
7	Not Used
8	Not Used
9	Not Used

8.3 POWER CONNECTOR (Mounted on rear panel)

2.5 mm Chassis Mounted DC skt

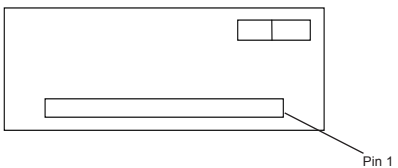
PIN	DESCRIPTION	DETAIL
1	+24V DC Power IN(centre pin)	Power for Instrument routed through a switch
2	POWER RETURN	

8.0 Interface Connections (cont.)

8.4 Analogue Voltage and Current Inputs
12 way terminal block

12 Way Screen Terminal Strip Mounted on Rear Panel	
PIN	**DESCRIPTION**
1	+15V Output, 100mA Maximum
2	0V
3	-15V Output, 100mA Maximum
4	Channel A 4-20 mA Loop Source +
5	Channel A 4-20 mA Return
6	Channel A Voltage Input
7	Channel A Voltage Return
8	Channel B 4-20 mA Loop Source +
9	Channel B 4-20 mA Return
10	Channel B Voltage Input
11	Channel B Voltage Return
12	0V

Note: Pin 1 is to the right when viewed from rear



9.0 Technical Specification

MAIN INSTRUMENT	
Display Type	Colour LCD with integral backlight.
Display Length (mm)	±ABCD.EFGH
Display Length (inches)	±ABCD.EFGHJ
Resolution - Display	0.05μm or 0.000005"
Analogue Display	Solid Vertical bar
Keypad	9 key membrane keypad (Print, Zero, Peak/Track, Enter, Menu and navigation keys)
Temperature	Storage temperature range: -20°C to +85°C, Operating temperature range: 0°C to +50°C
IP Rating	Front panel: IP65, Case: IP51
POWER SUPPLY	
Voltage	+24V DC ±10%
Power	5 Watts maximum at 24V DC
(Universal 100-240V AC Input 24V DC PSU supplied with unit)	
MECHANICAL	
Weight	1.1kg excluding transducers
Dimensions	See drawing
ELECTRICAL CONNECTIONS (Rear Panel)	
DC Power	2.5mm DC Socket (Ctr pin +24V , Outer Return)
Input	2 x 4-20mA or 2 x DC Input
Serial Comms (RS232)	9 way D type socket
Input/Output	25 way D type socket
Digital Inputs	4 off switch activated with common isolated return
Digital Outputs	6 off current sink with common isolated return, programmable ACTIVE HI or LO Each pin can sink 500mA @ up to 40V
Analogue Outputs	1 for Channel A , 1 for Channel B, Independent Channel Range selection of : 0 to 5V, 0 to 10V, ± 5V, ± 10V, 4 to 20 mA - Accuracy 0.1% FSO